

10/526125
 BT01 Rec'd PCT/PTC 28 FEB 2003

SEQUENCE LISTING

<110> CHIRON SRL
 <110> PIZZA Mariagrazia
 <110> MASIGNANI Vega

<120> MUTANT FORMS OF MENINGOCOCCAL ADP-RIBOSYLATING TOXIN

<130> P031668W0 / PP19813-002

<150> GB-0220205-9

<151> 2002-08-30

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<170> SeqWin99, version 1.02

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 Arg Tyr Asp Gly Lys Phe Lys Tyr Asp Gly Lys Ala Thr His Gly Pro
 35 40 45
 Ser Val Lys Asn Ala Val Tyr Ala His Gln Ile Glu Thr Gly Leu Tyr
 50 55 60
 Asp Gly Cys Tyr Ile Ser Thr Thr Thr Asp Lys Glu Ile Ala Lys Lys
 65 70 75 80
 Phe Ala Thr Ser Ser Gly Ile Glu Asn Gly Tyr Ile Tyr Val Leu Asn
 85 90 95
 Arg Asp Leu Phe Gly Gln Tyr Ser Ile Phe Glu Tyr Glu Val Glu His
 100 105 110
 Pro Glu Asn Pro Asn Glu Lys Glu Val Thr Ile Arg Ala Glu Asp Cys
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 Gly Cys Ile Pro Glu Glu Val Ile Ile Ala Lys Glu Leu Ile Glu Ile
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 Asn
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 <212> PRT
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<400> 2
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 Arg Tyr Asp Gly Lys Phe Lys Tyr Asp Gly Lys Ala Thr His Gly Pro
 35 40 45
 Ser Val Lys Asn Ala Val Tyr Ala His Gln Ile Glu Thr Gly Leu Tyr
 50 55 60
 Asp Gly Cys Tyr Ile Ser Thr Thr Thr Asp Lys Glu Ile Ala Lys Lys
 65 70 75 80

Phe Ala Thr Ser Ser Gly Ile Glu Asn Gly Tyr Ile Tyr Val Leu Asn
85 90
Arg Asp Leu Phe Gly Gln Tyr Ser Ile Phe Glu Tyr Asp Val Glu His
100 105 110
Pro Glu Asn Pro Asn Glu Lys Glu Val Thr Ile Arg Ala Glu Asp Cys
115 120 125
Gly Cys Ile Pro Glu Glu Val Ile Ile Ala Lys Glu Leu Ile Glu Ile
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Arg Tyr Asp Gly Lys Phe Lys Tyr Asp Gly Lys Ala Thr His Gly Pro
35 40 45
Ser Val Lys Asn Ala Val Tyr Ala His Gln Ile Glu Thr Gly Leu Tyr
50 55 60
Asp Gly Cys Tyr Ile Ser Thr Thr Thr Asp Lys Glu Ile Ala Lys Lys
65 70 75 80
Phe Ala Thr Ser Ser Gly Ile Glu Asn Gly Tyr Ile Tyr Val Leu Asn
85 90 95
Arg Asp Leu Phe Gly Gln Tyr Ser Ile Phe Glu Tyr Glu Val Asp His
100 105 110
Pro Glu Asn Pro Asn Glu Lys Glu Val Thr Ile Arg Ala Glu Asp Cys
115 120 125
Gly Cys Ile Pro Glu Glu Val Ile Ile Ala Lys Glu Leu Ile Glu Ile
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Asn
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Arg Tyr Asp Gly Lys Phe Lys Tyr Asp Gly Lys Ala Thr His Gly Pro
35 40 45
Ser Val Lys Asn Ala Val Tyr Ala His Gln Ile Glu Thr Gly Leu Tyr
50 55 60
Asp Gly Cys Tyr Ile Ser Thr Thr Thr Asp Lys Glu Ile Ala Lys Lys
65 70 75 80

Phe Ala Thr Ser Ser Gly Ile Glu Asn Gly Tyr Ile Tyr Val Leu Asn
85 90
Arg Asp Leu Phe Gly Gln Tyr Ser Ile Phe Glu Tyr Glu Val Glu His
100 105 110
Pro Glu Asn Pro Asn Glu Lys Asp Val Thr Ile Arg Ala Glu Asp Cys
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Gly Cys Ile Pro Glu Glu Val Ile Ile Ala Lys Glu Leu Ile Glu Ile
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Asn
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<210> 5
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<212> PRT
<213> Neisseria meningitidis, serogroup B

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aacctttaaa ttaataactt atgggaaatt tcttatatag aggcattagt tgccaacaag 180
atgagcaaaa taatggacag ttaaaaccta aaggtaataa agctgaagtt gcaattcgtt 240
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tttacgcccc tcaaattgaa acaggtctat atgacggatg ttatatatct acgacaacag 360
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<212> DNA
<213> Neisseria meningitidis, serogroup A

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<213> Neisseria meningitidis, serogroup A

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<212> PRT
<213> Neisseria meningitidis, serogroup A

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<210> 10
 <211> 180
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 <213> Neisseria gonorrhoeae

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<210> 12
 <211> 7
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 12
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<210> 13
 <211> 147
 <212> PRT
 <213> Vibrio cholerae

<400> 13
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 1 5 10 15
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 20 25 30
 Gln Met Asn Ile Asn Leu Tyr Asp His Ala Arg Gly Thr Gln Thr Gly
 35 40 45
 Phe Val Arg His Asp Asp Gly Tyr Val Ser Thr Ser Ile Ser Leu Arg
 50 55 60
 Ser Ala His Leu Val Gly Gln Thr Ile Leu Ser Gly His Ser Thr Tyr
 65 70 75 80
 Tyr Ile Tyr Val Ile Ala Thr Ala Pro Asn Met Phe Asn Val Asn Asp
 85 90 95
 Val Leu Gly Ala Tyr Ser Pro His Pro Asp Glu Gln Glu Val Ser Ala
 100 105 110
 Leu Gly Gly Ile Pro Tyr Ser Gln Ile Tyr Gly Trp Tyr Arg Val His
 115 120 125
 Phe Gly Val Leu Asp Glu Gln Leu His Arg Asn Arg Gly Tyr Arg Asp
 130 135 140
 Arg Tyr Tyr
 145